ALMAMET will host the 14th INTERNATIONAL SYMPOSIUM ON THE DESULFURIZATION OF HOT METAL AND STEEL in Athens, September 14-17, 2016.
Contents

Transitioning Desulphurization Reagent from CaC₂ to Lime Carrier in South Africa
Steven N. Biljan, Almamet GmbH, Canada.................................................................page 3

Experience of Improving Desulphurization at JSW Steel Ltd
Ravi Dashottar, Amit Sarkar, Abhijit Sarkar, S.C. Vishwanath, Ratna Prasad, India...............page 10

Numerical Simulation of Nitrogen Injected into a Vessel filled with Molten Iron
Yu Weimin, Beijing Met. Equ. R&D Corp. Ltd. Of MCC group; Wang Jie, Lu Tao, College of Mech. and Electr. Engineering, Beijing University of Chemical Technology, China........................................page 15

Development of China’s Iron and Steel Industry in twenty Years and Optimization of Magnesium Metal Application in Steel Production
Su Tian-sen, The Chinese Society for Metals, China..................................................page 23

Possibilities of Desulphurization in the New Secondary Metallurgy in the LD3 Steel Plant in Linz
Andreas Gantner, Voestalpine Stahl GmbH, Austria..................................................page 36

Using of Mg cored wire in foundry and steel industry
Boris Huna, Almamet GmbH Ainring, Germany........................................................page 42

Primetals Technologies – Solution for Steelmaking from the Market Leader
Jens Kluge, Primetals Linz, Austria..............................................................................page 49

Development of Refractory Slag Skimmer Plates
Kumar Subramaniam, Alfred Kremer, GS8 group, Germany......................................page 59

Graphite Electrodes, Markets and Process Management
Gernot Macher, Almamet GmbH, Austria.....................................................................page 67

Dephosphorization reagent for hot metal treatment
Robert Moger, Dunaferr, Boris Huna, Almamet GmbH Ainring, Germany....................page 69

Thermal processing of desulfurization slags
Christoph Pichler, Jürgen Antrekowitsch, Doppler Institut Leoben; Karl Pilz, Voestalpine Stahl GmbH, Austria........................................................................................................page 73

Efficient Hot Metal Desulphurization Ladle
Andreas Viertauer, RHI AG, Austria..............................................................................page 82

Innovating the AMC Refractory Products for the Pig Iron Area with the Introduction of Antioxidants
Roberto Prudente, Roberto Peri, Sanac, Italy..............................................................page 88
Transitioning Desulphurization Reagent from CaC2 to Lime Carrier in South Africa

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Introduction
The South African steel Industry is one of the last remaining steel plants where Calcium Carbide has been used extensively for desulphurization of hot metal. Two steel plants, ArcelorMittal Newcastle and Vanderbijlpark Works will be discussed in this paper.

Almamet GmbH was asked to assist Newcastle with their desulphurizing facility after many issues with starting up the plant and stabilizing injections with CaC2 and Magnesium. A preliminary visit was set up in January of 2015 and the facility was evaluated.

ArcelorMittal Vanderbijlpark Works conducted trials with Lime as a carrier reagent in April of 2016 on the background success of Newcastle lime trials. Almamet GmbH with the assistance of Emfuleni Aggregates and Minerals conducted and coordinated the trials with the partnership of IDWALA Industrial Holdings.

Subsaharan Africa BFI Iron Production
The Steel Industry in Africa on average has seen the same effect as the rest of the world with a substantial reduction in steel production with the growth of the Asian Steel market. With the peak of BFI production in 2005, South Africa at the end of 2014 was at the same level as in 2000. Although in 2015 South Africa seems to be recovering with increased demand maintaining a steady BFI production 450,000 t per month with 2016 expected to see further increases.

Newcastle Initial Evaluation
The initial evaluation of the facility was conducted in January of 2015. The facility has two injection stations injecting CaC2 and Mg. The purpose of this visit was to establish and assist Newcastle with control of consistent injections using their current setup with CaC2 and Mg. The sequencing of the injections was observed and modified. Variable orifice control was altered to avoid fluctuations in the injection. Lance depth in the hot metal and lance design was evaluated. Some of the issues that were immediately evident were the following:

- Excessive turbulence in the bath (Mg rates of higher than 3-4kg/min were not possible. On some occasions Mg could not even be injected)
- Variable orifice was not controlling rate properly for either CaC2 or Mg. (This caused some of the turbulence in the hot metal)
- Piping – Injection line pipe with reductions at pipe connections.
- Inconsistent CaC2 flowability. (This was evident when CaC2 was injected with variable orifice valves locked in one position)
- Lance inside diameter was too large for this size ladle to inject without surging. Additionally, lance diameter was greater than the injection line diameter.

Switching from Carbide to Lime in Hot Metal Pre-treatment – Tata Steel experience
J Haribabu, Vikram Singh Shekhawat, Sneha Ranjan, Amarnath Mukherjee, Debashis Das, Sudhansu Pathak, TATA Steel, India

Economic Desulphurization of Hot Metal by Revamping and Process Optimization
Lutz Kaiser, Thyssen Krupp Industrial Solutions, Germany

Metallurgical Improvements by Conversion from Carbide Alloys to KM115-D at Voestalpine Donawitz
Gerald Klösch, Klaus Srienc, VA Donawitz, Gernot Macher, Almamet GmbH, Austria